

Commentary on candidate 1 evidence

The evidence for this candidate has achieved the following marks for each section of this course assessment component.

Section	Mark available	Mark awarded	Comments
1 Aim	1	1	The aim clearly describes the purpose of the investigation.
2 Underlying biology	3	3	<p>There are at least three expanded descriptions/explanations, which are relevant to the aim and at a depth appropriate to National 5 Biology.</p> <ul style="list-style-type: none"> ◆ 'Osmosis is... cannot fit through.' (Definition of osmosis along with an explanation of why water molecules can pass through the selectively permeable membrane.) ◆ 'When there is... become turgid.' (Explanation of how the plant cells become turgid when there is a higher water concentration outside the cells.) ◆ 'Plant cells... increase in mass.' (Description of the function of the cell wall and the effect of osmosis.) ◆ 'When the water... cell is now plasmolysed'. (Description of how the plant cells become plasmolysed)
3 Data collection and handling	6	a 1	The brief description of the experiment is suitable, as there is sufficient detail to allow the nature of the experiment to be visualised.

Section	Mark available	Mark awarded	Comments
		b 1	<p>The raw data is sufficient. An appropriate number of values (6 concentrations), over a suitable range, has been used for this experiment. Repeated measurements have also been made.</p> <p>The 'Average' column of the table is considered in section 3d.</p>
		c 0	<p>The experimental data is presented in a table, but not all of the column headings are clear in their meaning.</p> <p>The 'Mass Before' and 'Mass After' columns should indicate that it is the mass of potato. The 'Percentage Change' column should indicate that it is the percentage change in mass of potato, as should the 'Average' column.</p>
		d 1	<p>The mean values (averages) from the candidate's experimental data are calculated correctly and included in the table.</p>
		e 0	<p>Research data (a graph) is included but it is not relevant to the aim and does not support the experimental data.</p> <p>This data shows the effects of sugar concentration on potato cell mass rather than salt concentration, as stated in the aim.</p>
		f 1	<p>The source of the research data is referenced as per the instructions for candidates. This is given in sufficient detail for it to be retrieved by a third party.</p>

Section	Mark available	Mark awarded		Comments
4 Graphical presentation	4	a	1	The graph produced is based on the candidate's experimental data. A line graph is selected which is the appropriate format for this data.
		b	1	Both axes have suitable scales.
		c	1	Both axes have suitable labels and units.
		d	1	The points are plotted correctly and joined with an appropriate line.
5 Analysis	1	0		<p>The comparison made between the experimental data and the research data (graph) is not valid.</p> <p>The potato does not lose 'more mass' as the concentration increases nor does it 'gain more' at low concentrations. The claim that both graphs 'start to level off' is incorrect as both the experimental data and research data show a decrease between the final two points.</p>
6 Conclusion	1	0		The conclusion given is invalid. The statements given are not supported by the data in the report.
7 Evaluation	2	1		Excess water on the potato is correctly identified as a factor that could have had a significant effect on the reliability, accuracy or precision of the experiment.
		0		There is no explanation as to why 'start and stop' lines on a paper towel would minimise that factor.
8 Structure	2	a	1	An informative title is given.

Section	Mark available	Mark awarded		Comments
		b	1	The report is clear and concise.
Total	20	15		